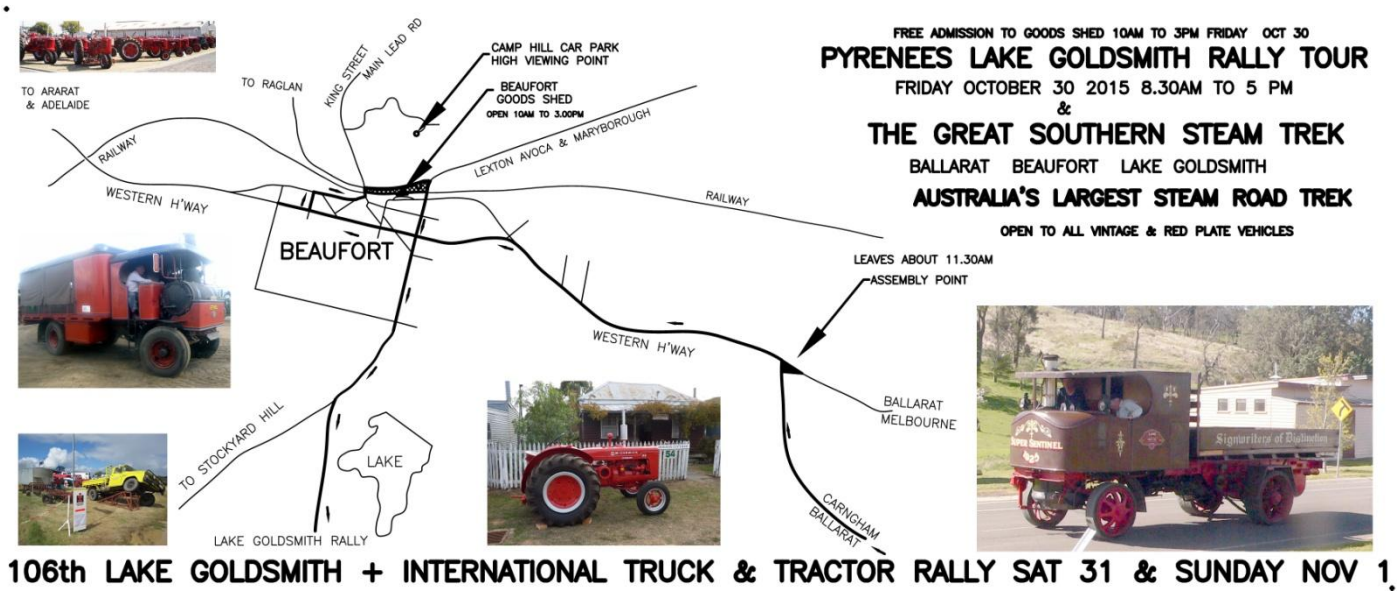
Goldsmith

The Pyrenees Heritage Preservation Magazine No134 October 2015
Lake Goldsmith Steam Preservation Association Inc
Registration No:- A0032895
Rally Grounds:-1234 Lake Goldsmith-Carngham Road Lake Goldsmith Vic

GOLDSMITH INTERNATIONAL-McCORMICK RALLY No 106
And
Pyrenees-Lake Goldsmith Rally-Tour



The 106th Lake Goldsmith Rally is the first to tie our Rally Grounds with the Associations Beaufort Heritage Precinct Display facility on the site of the recently renovated Goods Shed and grounds in Albert Street Beaufort.

To mark the event the Sentinel Steam Wagon owners have organized

The Great Southern Steam Trek

For all types of Steam road vehicles, cars, wagons, rollers, traction engines and replicars.
This unique event is to be the largest show of steam wagons outside the UK .

This event will start in Cardigan near Ballarat at 8.30am on Friday Oct 30 and arrive in Beaufort about noon and join other Red Plate and classic cars trucks, tractors & bikes that will be arriving from 10am.

All vehicles will start to leave from 2.30pm on the:-

Pyrenees- Lake Goldsmith Rally-Tour

To the Goldsmith International-McCormick Deering Rally No 106

Mission Statement

To foster, nurture, encourage and demonstrate technical, agricultural and life skills associated with the Industrial Era.

To provide a quality environment where these skills may be used to educate and entertain members and visitors.

To run two weekend rallies each year, and be available at convenient time for other interested groups or individuals.

To conserve and develop a heritage collection.

A French Connection

From Heather Taylor,
Pyrenees Shire Tourism and events

An unusual coincidence for this Rally, is the arrival of visitors from France and Luxembourg where there are 13 of the more than 20 towns of Beaufort around the world. They are here for the 2015 Rassemblement de(*gathering of*) Beaufort, which this year is hosted by Beaufort in Western Victoria.

41 guests are expected to be here from the 29th of October to the 5th of November. The visitors are all billeted out to stay with local residents and they have tours arranged to local attractions, one of which is the Steam Rally at Lake Goldsmith on Saturday 31st of October.

We hope that they enjoy their week in Beaufort.

Find us on the net at:- **www.lakegoldsmithsteamrally.org.au**

Or contact us by email **info@lakegoldsmithsteamrally.org.au**
Or write to: **The Secretary:- P.O. Box 21 Beaufort 3373**

Or contact the editor:- **goldsmitgazet@optusnet.com.au**

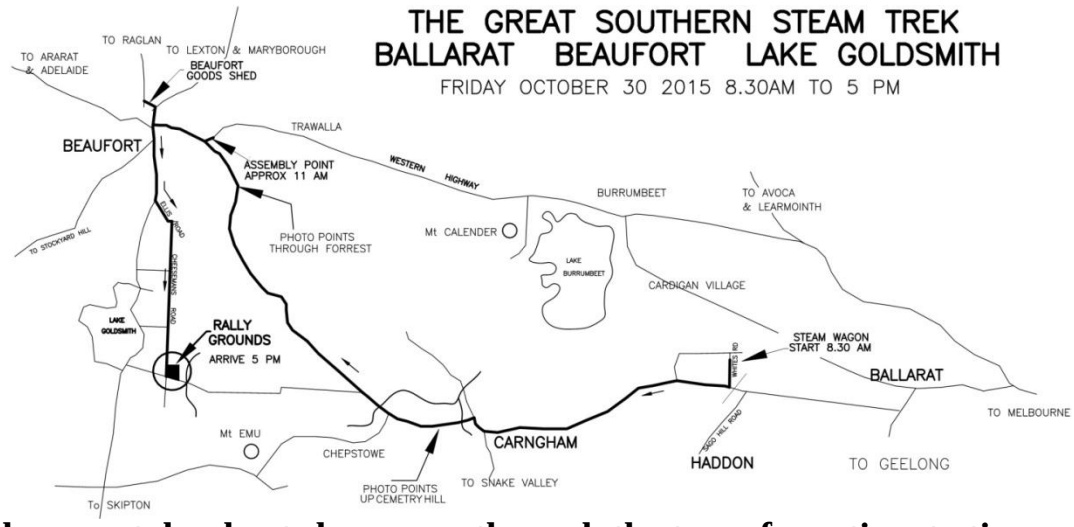
To register for this "cost & obligation free" bi-monthly e-magazine "Goldsmith" email:-

goldsmitgazet@optusnet.com.au **or ph 0425 744 052**

A UNIQUE EVENT FOR BEAUFORT & LAKE GOLDSMITH

The last edition of Goldsmith (No 133) gave an overview of some of the steam wagons that will be on the steam trek. These wagons will be joined by Traction engines on the run from Ballarat to Beaufort. There is a great difference in the road speed of these vehicles, so an assembly point has been arranged at the parking area where the Carngham Road meets the Western Highway on the East side of Beaufort.

Vehicles will leave from the assembly point and travel on the highway through the centre of Beaufort and return along Burke Street to the rail crossing at King Street and turn into Albert Street and the Goods Shed Grounds.



Vehicles, (apart from the steamers) are expected to arrive at the Goods Shed from 10am and be on display until 2.30pm.

The show vehicles may take short show runs through the town from time to time. There is a storage area at Beaufort and Lake Goldsmith for transport vehicles that will only be on the Friday Tour. Others will be doing a round trip from the Rally Grounds

The Tour will start from the Goods Shed grounds about 2.30 pm and head South on the Skipton Road. Slow vehicles will turn left at Ellis Road and follow Cheesemans Road to the Rally Grounds. Faster vehicles that will not be a traffic hazard may follow the asphalt Skipton road to the Carngham Road and turn left to the Rally grounds.

The Tour will include a convoy of International Trucks and Tractors, some of which will join the Steamers and other vehicles on the run from Ballarat, others will meet in Beaufort at the Goods Shed and join the Tour to the Rally Ground.

International Harvester has always been well represented at Lake Goldsmith. Many examples are permanently in the display sheds and many more are exhibited at Rallies.

International & McCormick Deering, and the 19th century American agricultural companies that they were formed from, were innovators throughout the period of rural mechanisation from the introduction of early reaping and harvesting, to the introduction of tractors and mechanical buggies that could operate on farm tracks and roads used by horses.

From these innovative beginnings a vast network of dealers was formed around the world, and International became a household name in agriculture, transport industry and the military.

International Titan in NZ

INTERNATIONAL IN AUSTRALIA

In Australia, Geelong became the home of International Harvester in Australia.

Machinery was imported from America. This ranged from portable and stationary petrol and kerosene engines to Buffalo Pitts Steam portable and traction engines to Mogul and Titan tractors. All of this was in addition to the dedicated farm machinery that had been the core business of the 19th century. Road transport started with the 2 cylinder high wheel buggies and soon expanded to include the 3/4Ton H model plus higher capacity models in this early alphabetical series of "Coal Scuttle" bonneted 4 cylinder water cooled monoblock petrol engined trucks. The model H was upgraded around 1920 to 1 ton capacity, and the called the model 21, and the rest of the upgraded alphabetic models took numbers ending in 1. Pneumatic tyres became an option, the dainty round wheel spokes became square, and the gravity feed fuel tank moved from under the timber bench seat up to the scuttle. The front mounted acetylene headlights, were fed

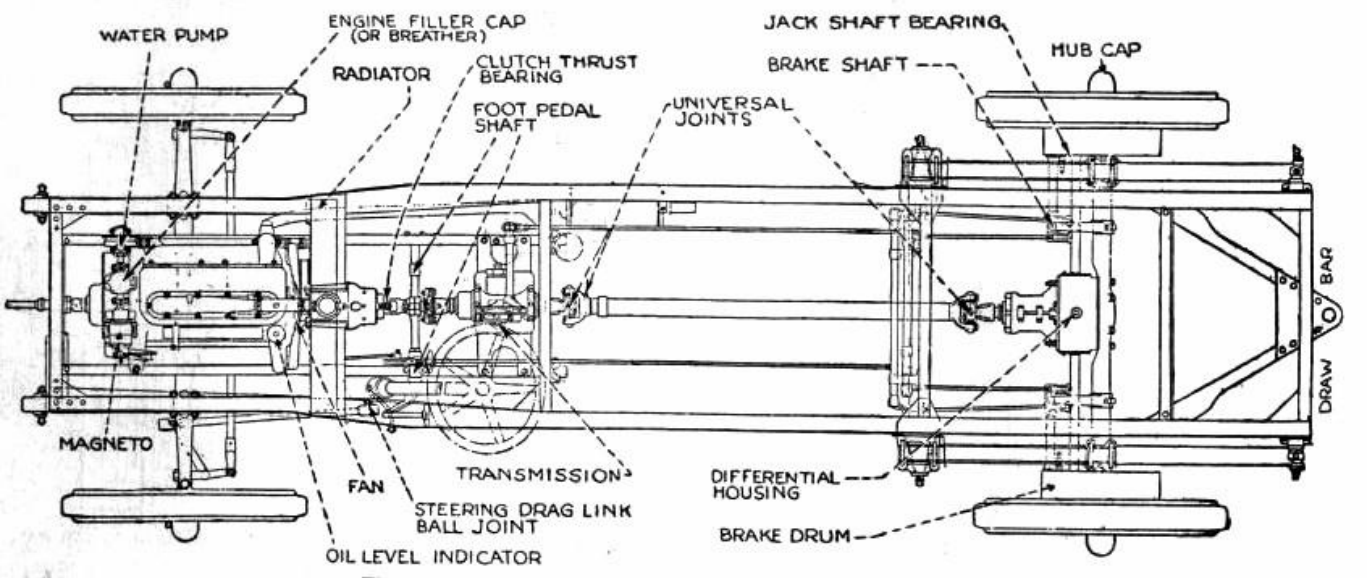
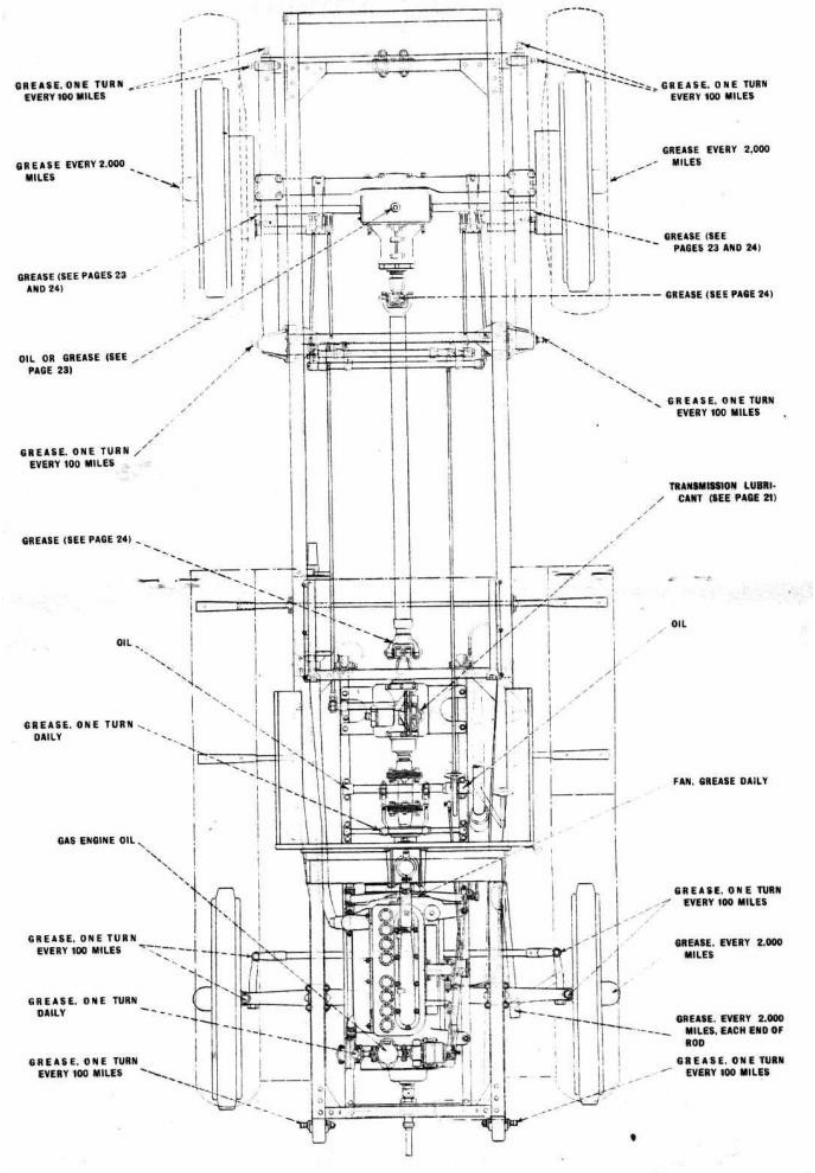


Fig. 35. Top view of International one-ton truck chassis.



from a rechargeable storage cylinder, or if you had a battery charger at home you could have electric lights on the scuttle fed from a battery under the seat. I guess that these were vast improvements on the candle lights on your horse drawn gear, and your lighting choice depended on the farm lighting plant

On the left the model H chassis plan shows the 3 spring buggy style rear end, and the model 21 above shows the more conventional longer 2 semi eleptic spring that replaced it and allowed a substantial trailer drawbar to be fitted. Other differences from the early H's was the use of a multiplate clutch in lieu of the earlier cone clutch, and the early H's also used a distrubutorless American Bosch magneto that completed its electric circuit through a spark plug in a cylinder

on the exhaust stroke. Whichever cylinder was charged fired. The conventional distributor was fitted to later models.

The next series moved the Radiator to the front (behind a strong barred frame) This series model Numbers ended in 3, ie 33,43 etc

The 33 on the right had an overhead valve tractor engine with a 2 bearing crankshaft on ball and roller bearings. The gearbox and clutch housing moved up behind the engine and although there was a generator to charge a battery for the lights, a starter motor was yet to come. The rear axle still used external reduction gears in the hubs. The hand and foot brakes worked in drums (larger models had a transmission mounted hand brake) that were bolted to the timber spokes in the rear wheel. Pneumatic tyres were an option, and speed topped out at about 17 mph.

International Model 33 or 43

The fuel tank, (and filler neck), were inside the cab under the scuttle above the passengers knees, and the exhaust was under the floor (to dry up anything you spilled I guess).

The overhead valve rocker lubrication was independent of the engine system and required a a regular top with an oil can (conveniently, the lubricator pots projected above the rocker cover).

These vehicles were popular in Australia and New Zealand, particularly the 3 Ton models, G, 61, and 63 which seem to have survived in amazing numbers. The larger models gradually became used for transport and specialist roles, from buses to dump trucks and fire engines to service vans.

The rugged 3 series continued on into the late 20's, but 1921 saw a big change with the introduction of the Speed Model S, with its 4 cylinder Lycoming engine with a starter motor and full electrics, a banjo style fully enclosed rear axle with internal and external brakes on the same drums, and pneumatic tyres as standard.

Six Speed Special at Lake Goldsmith

They say, "It pays to own an International"

When Their Business Grows They Buy More Internationals

Owners of International Motor Trucks know just what International Service means

International Motor Trucks Have Made Good In Western Wisconsin

Red paint was first introduced in 1921 on some dealer "Red Baby" vans built on the S chassis and in 1923 a Speed Sedan was introduced on a modified S chassis.

International 1927 SL34 at Geelong

1925 saw the introduction of the 3/4ton Special delivery with a 4 cylinder Waukesha motor and a low chassis version of the S arrived as the SL. The 3 Diamond logo was beginning to appear on enamelled badges on the radiator and an outline was cast into some engine blocks. The S series in 4 and 6 cylinder and the heavier series of trucks continued until 1930 when the A series was introduced.

1928 saw the introduction of 4 wheel brakes. Heavier traffic, heavier loads and faster speeds were to much for the rear drums, some of which required sprag rods to be lowered from the rear axle to allow starting on hills. Anyone who can remember using unpowered mechanical brakes can hazard a guess at what starting on a hill might have been like.

1928 also saw the introduction of the six speed special which combined a 2 speed lever operated gearbox in the diff housing giving 6 forward and 2 reverse speeds. This popular model continued into the 1930's as the Model B2 with a road speed of over 35 mph.

1930 saw the introduction of a stylish A series range of trucks more or less filling the market slots of their predecessors. Typically International keep producing various models when people stopped them. New models did not seem to superseded earlier models, not immediately anyway. By 1930 the general layout of a truck was more or less standardised. Up to 1930 engines had ranged from 2 cylinder horizontally opposed engines in the Buggies through 4 cylinder side valve monoblocks with a magneto as the sole electric device to Hall Scott overhead cam units with high outputs for their larger range. Anyone with an interest in these pre1930 International trucks can find more information at the website of the *Veteran International Harvester Truck Registry* at:-

International A2 1933

www.vihtr.com

The site is run by Trevor Davis who owns the SL34 pictured at the top of this page.

1934 saw a major change in International trucks with the introduction of the all steel cab C series and the Diamond series of engines.

1937 saw the introduction of the very stylish automotive inspired D series, and 1941 saw the first K models (and the start of some military vehicles, including some made in Australia)

Again the lighter K models reflected current automotive styling with large chromed hubcaps, stylish grills and bumpers and a split v'd windscreen.

The larger K and KB trucks seemed massive with large engine bays, teardrop headlights and spider wheels. The K(?7) below had just returned from a trip to Alice Springs, the SL hitching a ride home had driven there from Melbourne, a tribute to an octogenarian truck and a patient driver.

International C30 1935

International D30 c1938

International K(?)5

International K?7 with SL on for a ride

International AL pickup

International AR

Inter R 190/200?

Following the K International introduced an Australian made series of trucks based on the American models.

A new Factory was built at Dandenong, about 30Km East of Melbourne.

The AL was a 2 piece windscreen version of the American L These trucks had a butterfly bonnet that could be opened from either side.

Trucks ranged from pickups to the massive AL & AR 190's (see last page) The AR was followed by the AS and then a new alphabetic series started with the AA which is readily recognised by dual vertical headlights. The AB was next in line. This time the headlights were off vertical and a fibreglass grill was used The A was dropped from the next C and D models and returned with the introduction of the ACCO series.

International C1100

International Scout

Clive Keays International C1300 4*4

The fore going outline just touches the edge of some of the trucks that International Harvester supplied or manufactured in Australia. They continued making trucks until the Dandenong Factory started producing Iveco Trucks, The American truck division survived as Navistar and it may be that we see International Trucks back in Australia.

The forgoing could have been written about farm machinery, Tractors Crawlers, Military Vehicles or Rural, portable and Industrial engines.

Many books have been written about International Harvester and the products that they have produced over their 150 plus year history.

Collectors of International, McCormick Deering and Farmal machinery are well served by the International Harvester Club of Australia Inc

The club has clubrooms at :-

Breakwater Road Breakwater, a suburb of Geelong, about 90Km South West of Melbourne on the Princes Highway. They have branches and sub branches in all states, and can be contacted on their websiteat:-

www.ihcaustralia.com.au

Many thanks to the editor of their magazine INTERVIEW and the Maher family of Clarkes Hill for their help with this project. And everyone who has restored and maintained the vehicles and tractors that are pictured here. Ed.

An immaculate example of a C2050 International ACCO

The combination of the International theme of the next Rally at Lake Goldsmith and the first Pyrenees Lake Goldsmith Rally Tour will hopefully attract some International

trucks to the event, and to the pre-rally Goods Shed Exhibition in Beaufort on Friday the 30th of October 2015.

Many International Truck collectors are members of the Historic Commercial Vehicle Club, which cater for all makes. This club has a branch in Ballarat and another in South Australia

The club has a website at:-

www.hcvc.com.au

where you can get contact details and catch up with what's happening in truck collecting. This club has had a high profile at Lake Goldsmith Rallies

There are many books available on International Products, and there will be dealers at the rally who can supply or order books that are available

Maher Family International C1800

Graeme Tomkins International c 1300 Bus and a ***Star series at Lake Goldsmith

International McCormick Deering W30 and a pair of 2 cylinder Titan Tractors.

This International TD 24 Dozer was in perfect working order at the 104th Rally

International Transtar

A collection of International Tractors outside their club rooms at Geelong showgrounds

Many of the Tractors pictured in the forgoing pages have been seen at previous Lake Goldsmith rallies, and we hope that they, and many more will be able to be seen again at the 106th International Harvester themed.

Recently an IH Engine service manual turned up. No CGES-185-3 June 1983 for 300 and 400 Series Diesel Engines. See page 21 for the vehicles and machines that used them. One item that caught my interest was the explanation on the operation of the hydraulically controlled INTRAVANCE® Injection timing advance and aneroid turbo lag fuel control. There are 24 scanned pages attached. (email & website only)

INTRAVANCE® COMPONENTS

The Intravance® consists of three major components: The drive shaft, the splined sleeve, and the camshaft. All three components have helical splines. The sleeve has splines on its inside and outside diameters which mate with splines on the drive shaft and camshaft. (Refer to Figure 7). Moving the splined sleeve causes the camshaft to advance or retard in relation to the drive shaft. If the splined sleeve is moved towards the fuel supply pump, the camshaft retards. If the splined sleeve is moved towards the injection pump mounting flange, the camshaft advances. (Refer to Figure 7).

INTRAVANCE® OPERATION

Servo Valve Positions

Sleeve movement towards advance is accomplished by admitting pressurized engine lubricating oil to a working chamber behind the sleeve. Oil is retained in the working chamber by oil control rings. Oil pressure moves the sleeve; and due to the helical splines on the camshaft and drive shaft, the camshaft advances in relation to the drive shaft.

Oil flow into the working chamber is controlled by the servo valve and camshaft flyweights. When engine speed increases, the flyweights move outward due to centrifugal force and overcome the servo valve spring force. The flyweights act upon the servo valve and move the valve so as to open the oil passage allowing pressurized oil to enter the working chamber behind the sleeve. Oil pressure causes the sleeve to move and the camshaft to advance.

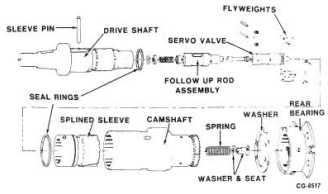


Figure 7 – Intravance® Components

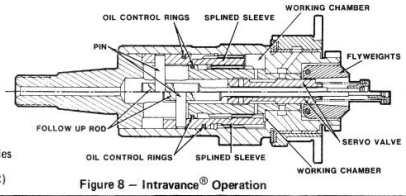


Figure 8 – Intravance® Operation

*United Technologies Diesel Systems (formerly AMBAC)

*United Technologies Diesel Systems (formerly AMBAC)

Incorporated in the supply pump cover are the fuel pressure regulating valve assembly, two check valves for the hand primer, a check valve in the fuel inlet passage, and a check valve in the fuel outlet passage. The hand primer assembly is threaded into the supply pump cover. (Refer to Figure 3).

Fuel supply pumps are very reliable components because the limited number of moving parts operate in filtered fuel. Pump rotation creates a suction at the inlet and causes fuel to flow from the fuel tank, through the primary filter, and inlet check valve. Fuel flows around the driving gear and idler gear and through the outlet check valve.

The pressure created by the gears forces fuel through the final filter and into the sump area. When the injection pump housing is completely full and the desired pressure is achieved, the pressure regulating valve opens. Excess fuel is recirculated internally to the supply pump inlet. (Refer to Figure 4).

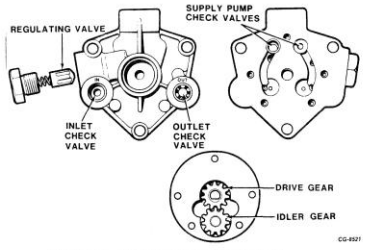
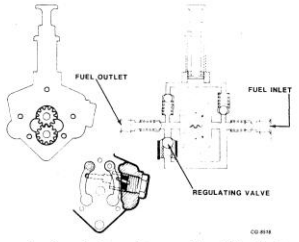


Figure 3 – Supply Pump Components



*United Technologies Diesel Systems (formerly AMBAC)

Figure 4 – Supply Pump Pressure Regulating Valve

GENERAL PUMP INFORMATION

Engines with serial number 400 000 and below use the UTDS* Model 100 pump with the exception of the DT-466B, TD 15C Paydozers and DT-466B 175C Payloaders which use the Robert Bosch MW Pump.

Engines with serial numbers 400 001 and above (all 466 "C" Series) use the Robert Bosch Model MW Pump. (Section 11)

OPERATION UTDS* MODEL 100 PUMP

PUMP FEATURES

The UTDS* Model 100 Series injection pump is flange mounted to the engine front plate and driven by the timing gear idler.

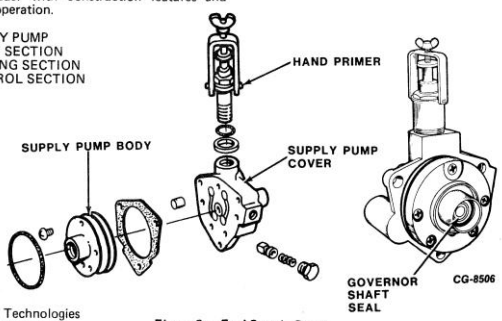
Depending upon engine application or customer preference, the pump may be equipped with an electric or mechanical fuel shut-off. Each pump is equipped with a hand primer to fill final fuel filter after replacement of fuel. The high capacity gear type fuel supply pump is designed as a mount for the hand primer.

The pump consists of the following major sections enclosed in an aluminum housing (Figure 1): Each section will be reviewed to acquaint the reader with construction features and pump operation.

SUPPLY PUMP
DRIVE SECTION
PUMPING SECTION
CONTROL SECTION

Fuel Supply Pump

The supply pump consists of the supply pump body assembly, the supply pump cover and the hand primer assembly. It mounts to the injection pump governor housing and is driven by the govenor drive shaft. The body assembly contains the two pump gears and the governor shaft seal. Fuel is separated from the oil lubricated parts inside the injection pump housing by the governor shaft seal, as illustrated in Fig. 2.



*United Technologies Diesel Systems (formerly AMBAC)

Figure 2 – Fuel Supply Pump Exploded and Assembled View

DRIVE SECTION

Injection Pump Intravance®

The Intravance® performs three functions: (Refer to Figure 5).

1. It converts rotating motion into reciprocating motion through the camshaft lobes and tappet mechanism to lift the injection pump plunger.
2. Through the automatic timing advance device, it advances the beginning of injection. That is, the advance mechanism causes port closing to occur earlier than the initial or static injection pump to engine timing.
3. The camshaft drive gear indexes with the governor drive gear and rotates the hydraulic head face gear and the governor drive shaft. Face gear rotation causes the plunger to rotate and distribute fuel to each discharge fitting. Power is transmitted through the governor drive shaft to rotate the supply pump.

AUTOMATIC TIMING ADVANCE FEATURE

As engine speed increases, injection timing is increased to maintain optimum performance. Timing advance is accomplished by rotating the outer camshaft section containing the camshaft lobes in relation to the camshaft drive shaft. The camshaft assembly, called the Intravance®, is operated by engine oil pressure and changes the amount of advance in response to engine speed. (Refer to Figure 6).

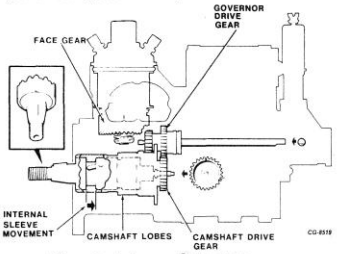
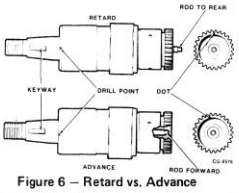


Figure 5 – Intravance® Functions



*United Technologies Diesel Sytems (formerly AMBAC)

Figure 6 – Retard vs. Advance

INTRAVANCE® COMPONENTS

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INTRAVANCE® OPERATION

Servo Valve Positions

Sleeve movement towards advance is accomplished by admitting pressurized engine lubricating oil to a working chamber behind the sleeve. Oil is retained in the working chamber by oil control rings. Oil pressure moves the sleeve; and due to the helical splines on the camshaft and drive shaft, the camshaft advances in relation to the drive shaft.

Oil flow into the working chamber is controlled by the servo valve and camshaft flyweights. When engine speed increases, the flyweights move outward due to centrifugal force and overcome the servo valve spring force. The flyweights act upon the servo valve and move the valve so as to open the oil passage allowing pressurized oil to enter the working chamber behind the sleeve. Oil pressure causes the sleeve to move and the camshaft to advance.

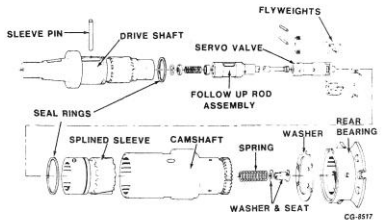

Figure 7 – Intravance® Components

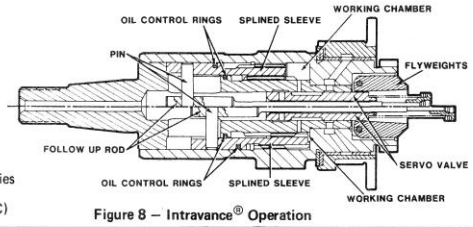

Figure 8 – Intravance® Operation

*United Technologies Diesel Systems (formerly AMBAC)

Sleeve Positions

The sleeve is fastened to the follow-up rod with a pin. As the sleeve moves towards advance, the rod moves and increases the spring force on the servo valve until the increased spring force returns the flyweights to the equilibrium position, and closes the servo valve. When this occurs, the advance stops and the Intravance® is in a state of equilibrium. (Refer to Figure 9).

When the engine reaches the speed at which full advance is to be achieved, the sleeve has traveled as far as it can and maintains the maximum intended advance. When engine speed decreases, the flyweights lose centrifugal force and the spring again acts upon the servo valve until the drain passage opens. This allows depletion of the lubricating oil in the working chamber through the servo valve and out the center of the drive shaft. Injection and plunger spring forces cause the sleeve to move towards the retard position until the flyweight force is again equal to the flyweight spring force and the servo valve closes. When the two forces are equal, the Intravance® is in an equilibrium condition. (Refer to Figure 10).

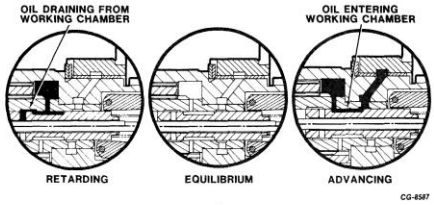

Figure 9 – Sleeve Positions

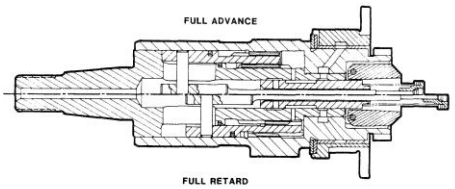

Figure 10 – Retard vs. Advance Cross-Section of Intravance®

*United Technologies Diesel Systems (formerly AMBAC)

PUMPING SECTION

Hydraulic Head Assembly (Refer to Figure 11).

Model 100 pumps feature a single, precision plunger which is actuated by the pump camshaft. It reciprocates for pumping action and rotates continuously for distribution of fuel via discharge outlets to individual cylinders. The precise rotating and reciprocating action of the plunger distributes a uniform volume of fuel per cylinder for smooth power and fuel economy. There is no need to make time consuming fuel adjustments for each cylinder.

All fuel pumping, distributing and metering functions are performed within the hydraulic head. The head assembly consists of the head core, plunger, metering sleeve, plunger face gear and hub, delivery valve assembly, plunger return spring, spring seat, plunger button, and delivery valve components. Four capscrews and clamps fasten the head assembly to the pump housing.

The head core has a central precision bore to which the plunger is lapped and fitted. It is counterbored and threaded at the upper end to retain the delivery valve holder and delivery valve assembly. The holder also serves as the upper seat for the delivery valve spring. Fuel is retained within the head by a delivery valve nut and gasket.

Four drilled holes extend from the outer diameter of the hydraulic head and terminate at the fill ports. These holes allow fuel to travel from the sump area surrounding the hydraulic head to the fill ports which are located near the top of the plunger bore. A single downward duct from the delivery valve bore intersects a horizontal duct that leads to the distributing slot in the plunger. Six drilled discharge ducts extend symmetrically from the plunger bore to the discharge fittings.

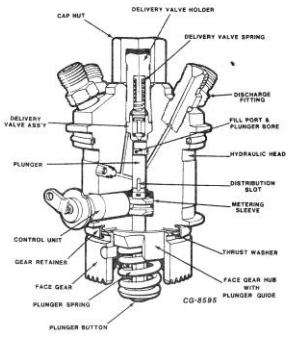

Figure 11 – Hydraulic Head Assembly

A horizontal rectangular slot in the lower section of the head accommodates the metering sleeve. Movement of the metering sleeve is accomplished by the control unit. When assembling the metering sleeve to the plunger, the head is inverted and the drill point on the sleeve is positioned upward.

The plunger is pressure balanced with a groove to counteract the side force caused by fuel pressure acting on the area of the distributor slot. This feature allows higher injection pressures than would otherwise be possible without creating abnormal side loads.

*United Technologies Diesel Systems (formerly AMBAC)

PLUNGER OPERATION

The plunger performs two functions simultaneously:

1. It pumps fuel as it is driven upward by the cam.
2. It distributes fuel under high pressure to the appropriate discharge line as it is rotated by a gear train.

In operation the plunger makes one complete revolution for each two revolutions of the pump camshaft. During the two camshaft revolutions, the plunger is actuated six times to deliver fuel to each engine cylinder. Only three camshaft lobes are necessary to actuate the plunger.

Plunger rotation is accomplished with a drive that indexes the plunger to the face gear and which eliminates any tendency for side loading the plunger. If the engine is rotated backwards, the face gear to plunger relationship changes which alters injection timing. As a result, the engine will not operate in reverse rotation. (Refer to Figure 12).

Fuel metering is controlled by varying the elevation of the metering sleeve in relation to the fixed port closing position. Port closing is the point at which the top of the plunger covers the intake ports. The injection pump is timed to the engine when the camshaft hub index mark and the pump housing timing pointer are aligned and the plunger is positioned to begin pumping on number one cylinder. After injection pump calibration, a port closing lock plug is installed in the injection pump opening near the oil supply inlet to ensure that the pump remains ready to inject fuel on the number one cylinder. The lock plug is removed after pump installation and a standard pipe plug installed in the same opening.

The lower spring seat, spring, and plunger button are fastened to the plunger. A spring ring is used to fasten the face gear assembly to the head. Thrust forces between the face gear and the head are accepted by a thrust washer.

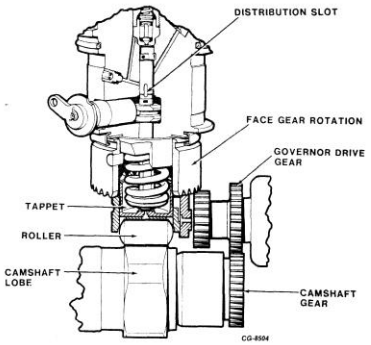

Figure 12 – Plunger Operation

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PUMPING SEQUENCE

The sequence of operations during injection is illustrated in the following four cross sections.

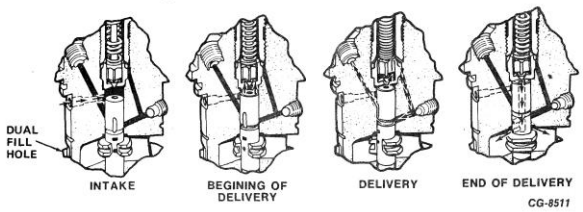

Figure 13 – Pumping Sequence

Intake

Fuel enters the pump from the supply system through the pump housing inlet fitting and fills the sump area. When the plunger is at the bottom of its stroke, fuel fills the plunger bore and the area between the top of the plunger and the bottom of the delivery valve. Fuel enters the plunger cavity through the fill ports and the dual fill hole located just above the metering sleeve.

Beginning of Delivery

As the rotating plunger moves upward in its stroke under cam action, it closes the two horizontal scallops which contain the inlet ports. Continuing upward plunger movement traps the fuel and places the fuel under pressure. The pressure increases until the spring-loaded delivery valve opens.

Delivery

As the plunger continues upward, fuel flows upward through the delivery valve, downward through the discharge passage in the head, around the plunger, up through the distribution slot in the plunger, and out through the appropriate discharge duct. The rotary and vertical motion of the plunger are so phased in relation to the discharge ducts that the vertical distribution slot overlaps only one outlet during the effective portion of each stroke.

End of Delivery

After sufficient upward movement of the plunger, the plunger metering port passes the upper edge of the metering sleeve which is positioned by the control unit and high pressure fuel escapes down the vertical hole in the center of the plunger into the sump surrounding the metering sleeve. The reduction in fuel pressure in the plunger area causes the delivery valve to close. The collar portion of the valve blocks the passage before the valve contacts the seat and reduces the pressure in the injection line.

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METERING PRINCIPLE
(Refer to Figure 25).

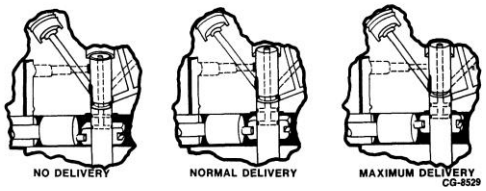

Figure 14 – Metering Principle

The quantity of fuel delivered per stroke is controlled by the position of the metering sleeve in relation to the fixed or constant port closing position. Port closing is the point at which the top of the plunger closes the intake ports. As the metering port of the plunger breaks over the top edge of the metering sleeve, pumping pressure is relieved down the vertical hole in the plunger into the sump area surrounding the plunger. Although the plunger continues upward, injection terminates.

Upward movement of the metering sleeve increases the quantity of the fuel pumped per stroke and downward movement decreases the quantity of fuel pumped per stroke which are both controlled by throttle position and/or governor.

No Delivery

When the metering sleeve is at its lowest point, the spill port on the plunger is uncovered by the top edge of the sleeve before the upper end of the plunger can cover the intake ports. Under this condition, no delivery can occur even after the intake ports are closed. This metering sleeve position is the no delivery or shut-off position.

Normal Delivery

If the metering sleeve is moved to the mid position, the spill port on the plunger is uncovered by the sleeve later in the plunger stroke. The effective stroke of the plunger is longer and fuel is delivered.

Maximum Delivery

If the metering sleeve is raised to a maximum height, the spill port on the plunger remains covered by the sleeve until relatively late in the plunger stroke, the effect plunger stroke is still longer and maximum fuel delivery occurs.

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DELIVERY VALVE OPERATION
(Refer to Figure 15).

As the plunger travels upward, it closes the fill ports and creates pressure. When the pressure overcomes the force on the spring holding the delivery valve on its tapered seat, the valve opens and high pressure fuel flows through the valve. Fuel then flows through the hydraulic head discharge passage, around the plunger, up through the distribution slot in the plunger and out through the injection line. When the spill port is uncovered by the metering sleeve, there is a sudden drop in fuel pressure below the delivery valve, and the valve spring acts to return the valve to its seat. After the valve starts downward into the body, the lower edge of the retraction piston enters the valve bore and blocks the passage. Further downward movement of the valve retraction piston increases the volume on the high pressure side by the amount of the retraction piston movement, and reduces the pressure in the line. This lowered line pressure promotes rapid closing of the injection nozzle valve and reduces the effects of hydraulic pressure waves that exist in the tubing between injections. Reducing line pressure prevents the valve from reopening prior to the next regular injection cycle.

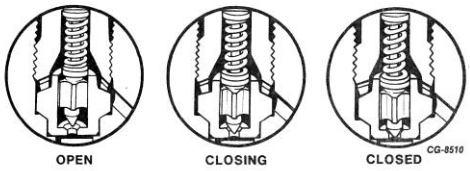

Figure 15 – Delivery Valve

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CONTROL SECTION

Model 100 Governor

The primary purpose of the governor is to serve as a means of controlling engine speed within defined limits, irrespective of engine load. In addition, the governor controls engine idling speed to prevent stalling and maximum speed to prevent over-speeding.

GOVERNOR DRIVE SHAFT ASSEMBLY

The governor is located within the governor housing and is driven at engine speed by the camshaft gear. The mechanical governor is incorporated in a unit called the governor drive shaft assembly. The governor drive shaft assembly has been revised from a "friction drive" style to "resilient drive". The new "resilient drive" style provides increased governor weight and shaft strength and durability and has no friction drive assembly thereby eliminating the need to set friction drive slippage torque during injection pump assembly. The new design governor drive shaft has a .075 in. radius behind the weight retaining shoulder. This radius replaces the undercut which was present in the old style governor drive shaft.

The governor drive shaft assembly does the following:

1. Drives the fuel supply pump.
2. Carries lubricating oil through a drilling in the governor drive shaft to lubricate the governor parts.
3. Old style governor drive shaft assembly incorporates a friction clutch to dampen torsional vibrations. The new style incorporates a resiliency principle to dampen torsional vibrations.
4. Incorporates the governor flyweight parts.
5. Provides a method for mounting the assembly to the governor housing through a bearing support plate.
6. Utilizes a large ball bearing for very long bearing life.

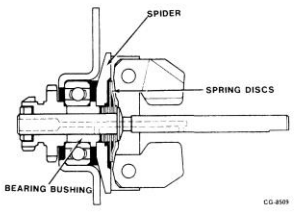

Figure 16 – Old Style "Friction Drive" Governor Drive Shaft Assembly

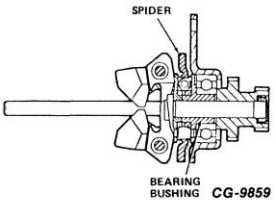

Figure 16A – New Style "Resilient Drive" Governor Drive Shaft Assembly

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Old style "friction drive" governor drive shaft assembly consists of: (Refer to Figure 17).

1. A governor gear which indexes the camshaft gear. Note that this gear also incorporates the gear that drives the hydraulic head face gear. Engine speed is converted to one-half engine speed by the forward gear and the face gear. As a result the injection pump plunger rotates at one-half speed.
2. The bearing support plate which provides a method to mount the assembly to the governor housing.
3. A ball bearing and bearing bushing.
4. The friction clutch spider assembly which includes the governor weights, weight pins and bushings, spider, spring discs and spacers which comprise the friction clutch.

A friction clutch is necessary to ensure long injection pump life. The clutch permits the governor weight and spider assembly to momentarily slip on its hub whenever sudden speed or load changes occur. This action dampens torsional vibrations in the pump camshaft and drive, and protects the pump and governor components.

Friction clutch slippage must be maintained within specifications for satisfactory engine performance. After long periods of operation, clutch slippage torque may be less than specifications. A symptom of low slippage torque is a tendency for engine speed to increase from a fixed speed. This increase in speed is not normally noticed except in vehicles equipped with power take-off. Higher engine speed results because clutch slippage allows the governor flyweights to rotate at lower than intended speeds.

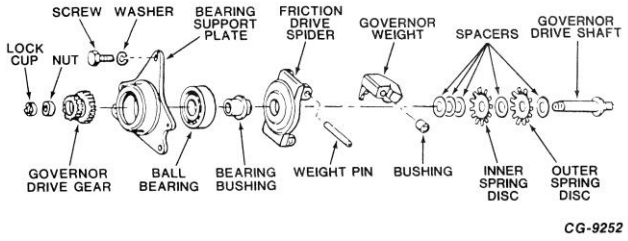

Figure 17 – Old Style "Friction Drive" Governor Drive Shaft Exploded View

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New style "resilient drive" governor drive shaft assembly consists of: (Refer to Figure 17A)

1. A governor gear which indexes the camshaft gear. Note that this gear also incorporates the gear that drives the hydraulic head face gear. Engine speed is converted to one-half engine speed by the forward gear and the face gear. As a result the injection pump plunger rotates at one-half engine speed.
2. The bearing support plate which provides a method to mount the assembly to the governor housing.
3. A ball bearing and bearing bushing.
4. A resilient drive spider assembly which includes weights, weight pins and bushings.

RESILIENT DRIVE ASSEMBLY

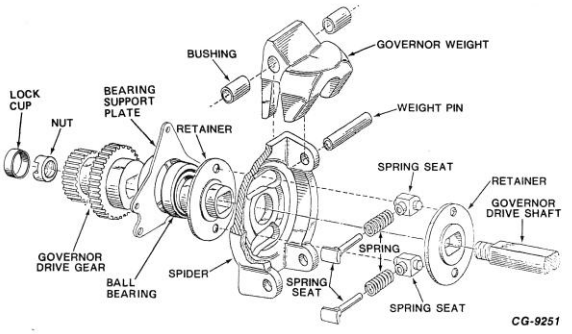

Figure 17A – New Style Governor Drive Shaft Exploded View

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GOVERNOR OPERATION

As the governor flyweights revolve, the centrifugal force tends to move them outward. The movement is opposed by the governor springs acting through the sliding governor sleeve. If the speed is decreased, the spring force will exceed the centrifugal force of the weights and move the sliding sleeve toward the front of the injection pump. Thus, any change in speed changes the position of the sliding sleeve assembly.

The two governor springs opposing the fly= weight force are called inner and outer springs. At low idle speed, the outer spring opposes the flyweight force. At high speeds, both springs oppose the force. (Refer to Figure 18).

Maximum sliding sleeve movement is approximately 15 mm. Governor springs and shims are usually selected to obtain a sleeve position of approximately 10 mm at rated speed.

The lower rate outer spring is the idle spring and is preloaded on the sleeve, usually 1.0-1.5 mm. Preload generally is selected so that the sleeve starts to move about 150-200 rpm below idle speed and the inner spring is contacted by the sleeve at 100-200 rpm above idle speed. The gap between the inner spring and the sliding sleeve is usually about 2.5-4.0 mm.

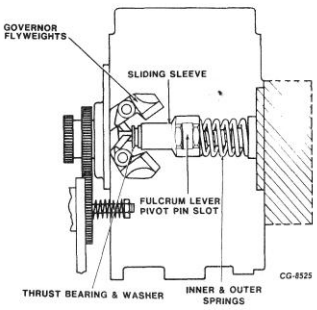

Figure 18 – Governor Centrifugal Force Versus Spring Force

Separating the governor flyweight fingers and the sliding sleeve assembly are two thrust washers and a thrust bearing. A pivot pin slot is machined on two sides of the sleeve for the fulcrum lever pivot pins.

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FULCRUM LEVER AND FULCRUM LEVER BRACKET

The fulcrum lever pivot pins fit in the two slots on the sliding sleeve assembly. A pin connects the fulcrum lever bracket and the fulcrum lever at the bottom of the fulcrum lever. The fulcrum lever bracket fits over the operating shaft and can pivot around the shaft. Attached to the operating shaft is a torsion spring hub and torsion spring.

The ends of the spring straddle the tongue of the spring hub and the fulcrum lever bracket with the result that spring tension tends to keep these two parts in line with each other. It is normal for them to become separated during operation.

Moving the operating lever will rotate the spring hub and fulcrum lever bracket, thereby causing the fulcrum lever to turn about the pivot pin. This movement changes the position of the pump control unit because the upper end of the fulcrum lever is connected by the control rod to the control unit lever. Fuel delivery will be increased or decreased according to the direction of operating lever movement. (Refer to Figures 19 and 20).

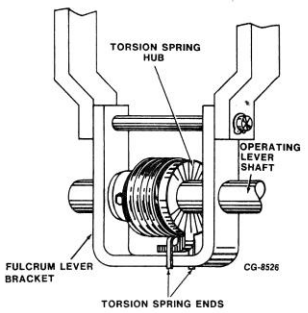

Figure 19 – Fulcrum Lever Bracket

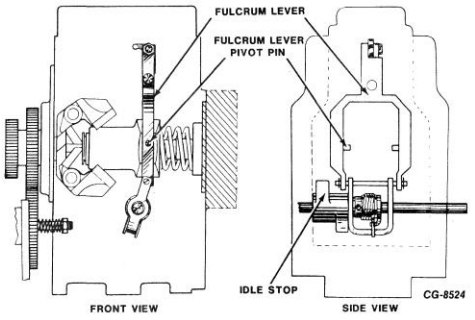

Figure 20 – Fulcrum Lever

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HIGH IDLE SPEED

The governor controls engine high idle speed by limiting fuel delivery. Fuel delivery is reduced until high idle speed is reached at which time there is just enough fuel to run the engine at no load.

When the operating lever is in the full throttle position and there is no load on the engine, the governor weights move outward forcing the sliding sleeve toward the fuel supply pump. The fulcrum lever also moves toward the fuel supply pump which pulls the control rod and rotates the control unit to lower the metering sleeve. At the new metering sleeve position, fuel delivery is sufficient to operate the engine at high idle.

TORQUE CONTROL

The fuel output requested by the governor is determined by the position of the upper end of the governor fulcrum lever. As the governor calls for more fuel, the fulcrum lever moves toward the hydraulic head and through the control rod and associated linkage moves the plunger metering sleeve upward. The amount of movement of the governor fulcrum lever is limited when either the cam nose or droop screw touches the stop plate.

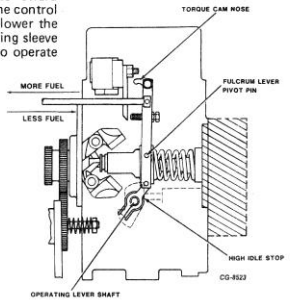

Figure 21 – Governor High Idle Control

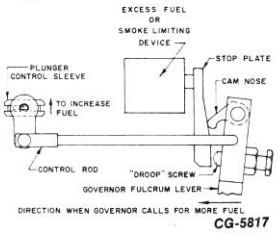

Figure 22 – Governor Torque Control

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CAM NOSE DEPARTURE

As load is applied to an engine operating at high idle, engine speed decreases. At a speed approximately 50-75 rpm above rated, the cam nose on the fulcrum lever contacts the stop plate. This contact occurs slightly above rated speed to ensure that the engine produces rated power. Fuel delivery is limited and adjusted by positioning the stop plate.

During injection pump calibration, the stop plate position is adjusted to obtain the specified fuel delivery at rated speed. Pump speed is then increased. The torque cam nose must depart from the stop plate approximately 75 rpm above rated speed. The drawing shows the torque cam immediately prior to departure from the stop plate. (Refer to Figure 23).

Peak Torque

As load increases and the engine speed decreases from rated, the bottom of the fulcrum lever moves toward the hydraulic head while the upper end pivots on the cam nose. The bottom of the fulcrum lever can move toward the hydraulic head while the operating lever is at full throttle because the lower end of the fulcrum lever pivots about the top of the fulcrum lever bracket. The rotation about the fulcrum lever bracket is absorbed by torsion spring. As the lower end of the fulcrum lever moves toward the hydraulic head, the cam "rises" on the stop plate. At peak torque speed, approximately 800 rpm below rated, the cam nose continues to pivot on the stop plate.

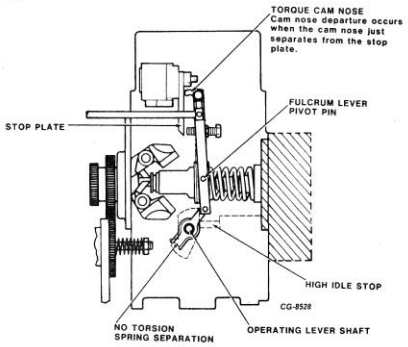

Figure 23 – Torque Cam Nose Departure

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DROOP SPEED

Just below or at peak torque speed, the droop screw contacts the stop plate. The droop screw now becomes the pivot point instead of the cam nose. Because the droop screw is lower on the fulcrum lever than the control rod, the control rod will be pulled toward the supply pump which decreases the fuel delivery and prevents a further rise in torque. (Refer to Figure 24).

ONCE THE INJECTION PUMP IS CALIBRATED ON A TEST STAND, MAXIMUM FUEL DELIVERY, PEAK TORQUE AND DROOP SETTING MUST NOT BE ALTERED. SEEMINGLY SMALL CHANGES IN CAM NOSE SETTINGS CAN INCREASE FUEL DELIVERY SUFFICIENTLY TO EXCEED ENGINE LIMITATIONS.

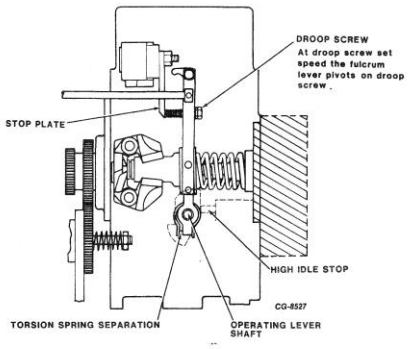

Figure 24 – Droop Speed

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CONTROL SECTION – (Continued)

During normal engine operation, the stop plate is fixed and does not move. Under some conditions, however, it is desirable to alter the normal torque by moving the stop plate to the left or to the right.

– **EXCESS FUEL DEVICE** –
(Single and Dual Piston)
AND
– Combination Excess Fuel and ANEROID DEVICE –

EXCESS FUEL DEVICE
(Single and Dual Piston)
Refer to Figures 25 and 26

Purpose

The excess fuel device allows the governor linkage to position the fuel control for maximum fuel delivery during engine cranking for easier startability.

Operation

The Model 100 excess fuel device is a lube oil pressure actuated assembly that positions the fuel stop plate. When no lube oil pressure is present, an internal spring (4) forces the stop plate adjusting screw (6) and piston (2) into the housing (1), moving the fuel stop plate (5) toward the increased fuel position.

To obtain maximum fuel delivery while cranking, the governor operating lever is moved to full load position. This, in turn, brings the fulcrum lever forward and in contact with the stop plate (5).

To prevent initial cranking lube oil pressure from activating the excess fuel device, oil is ducted simultaneously to the inside of the piston (2) and to a reduced area (7) behind the piston. Due to the screw (6) extending through the retainer (3), the effective area is reduced. Because of the small differential and additional force of the governor linkage, the device remain in excess fuel position at low RPM's.

When the engine starts and speed increases, the lube oil pressure also increases. At the same time, the force of the governor linkage against the fuel plate is decreasing due to increasing centrifugal weight force. At some speed well above cranking speed, the excess fuel device activates and moves the fuel plate toward normal fuel delivery.

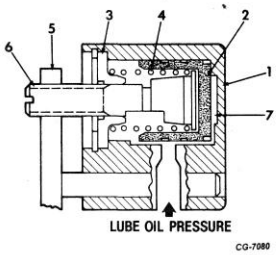

Figure 25 – Single Piston Excess Fuel Device

Legend for Figure 25

1. **Housing**
2. **Piston**
3. **Retainer**
4. **Internal spring**
5. **Stop plate**
6. **Stop plate adjusting screw**
7. **Reduced area behind the piston**

In the normal fuel position, the entire piston face area is exposed to lube oil pressure and the pressure inside the piston is vented through the slot in the adjusting screw. In this position, the lube oil pressure required to hold the piston is quite low and the piston will remain in position even when subjected to decreased lube oil pressure.

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Occasionally, due to an extra capacity lube oil pump, higher than normal cranking pressure could prematurely activate the excess fuel device. Similar conditions may be caused by a false start and brief high RPM's. In both situations it is difficult to obtain an engine startup with the fuel delivery reduced.

To prevent this from happening, a second generation dual piston excess fuel device was developed. In this unit, cranking lube pressure acts upon an area equal to the small inner piston (8, Figure 26), at the bottom of its bore in the larger piston (2). Any seepage of oil around the large piston is dissipated through vents and if high lube oil pressure while cranking or a false start should occur, the increased pressure required to activate the piston is not reached before the engine starts.

When the engine reaches normal speeds, the inner and outer pistons work together to hold the stop plate in normal run position.

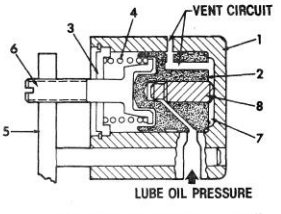

Figure 26 – Dual Piston Excess Fuel Device

Legend for Figure 26

1. Housing
2. Piston (outer)
3. Retainer
4. Internal spring
5. Stop plate
6. Stop plate adjusting screw
7. Reduced area behind the piston
8. Piston (inner)

Combination Excess Fuel and Aneroid Device (Refer to Figure 27)

Purpose

This device serves two functions: (1) It provides excess fuel for starting and (2), responds to intake manifold pressure to automatically limit or "cut back" fuel delivery as a function of this pressure.

Operation

The excess fuel portion functions the same as the single piston previously described.

Background For Aneroid

Turbocharged engines have a characteristic known as "turbospeed lag." This is described as the time period between the injection of an increased amount of fuel and until the turbocharger boost pressure increases.

Under transient conditions such as low idle, during gear shifting and engine overrun, fuel quantities are greatly reduced. Reduced fuel quantity lowers the exhaust pressure available to power the turbocharger.

The operation of a turbocharger depends upon exhaust pressure to drive its turbine which is located in the exhaust stream. The turbine is coupled directly to a fan or compressor by means of a shaft. The Compressor, located in the intake system, draws in air from the atmosphere and increases the pressure in the intake manifold. When an intake valve opens, the available air for the cylinder charge is greater than in a naturally aspirated engine.

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With an increased amount of air in the cylinder, a corresponding increase in fuel can be converted to power by the engine. During "turbo speed lag," if a higher fuel quantity is injected, combustion will not be complete due to the lack of air. If this situation is allowed to occur, black smoke is exhausted by the engine.

To reduce the black "puffs" of smoke during "turbo speed lag," a fuel limiting device or aneroid was developed.

Excess Fuel Device with Aneroid Operation

The Excess Fuel Device with Aneroid consists of housing (1) with an outer piston (8) spring (12) loaded in the direction of decreased fuel. This piston has a small inner piston (2) for excess fuel when starting.

Maximum fuel reduction by the Excess Fuel Device with Aneroid is about 20% of rated fuel delivery and is controlled by the outer piston (8) travel which is adjusted by shims and a retainer ring (11).

The outer piston (8) positions the stop plate (5) toward the fuel limiting position when the spring (12) force is greater than the actuating force from the puff limiter piston rod. Since the aneroid is activated by manifold pressure, the force on the rod is always in proportion to the manifold pressure.

When turbo charge boost pressure is low, the spring (12) forces the piston (8) and aneroid piston rod toward decreased fuel. When the fuel is increased, as during acceleration, the fuel is limited until the "turbo speed lag" has been overcome as sensed by the aneroid. The diaphragm and piston rod push the piston (8) and stop plate (5) toward the full load fuel position and the engine can operate at full power.

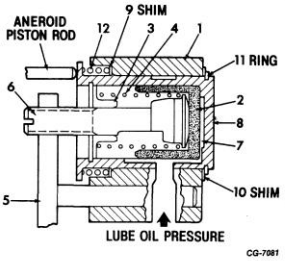

Figure 27 – Excess Fuel Device With Aneroid

1. Housing
2. Piston (inner)
3. Retainer
4. Internal spring
5. Stop plate
6. Stop plate adjusting screw
7. Reduced area behind the piston
8. Piston (outer)
9. Shim(s)
10. Shim(s)
11. Retainer ring
12. Spring (outer piston)

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– INJECTION PUMP SPECIFICATIONS –

DIMENSION TITLE	VALUE IN METRIC MEASURE	VALUE IN ENGLISH MEASURE
Identations in weight spider from spring disc fingers	0.05 mm	0.002 in
Total thickness of governor spring discs and spacers	4.83-5.33 mm	0.190-0.210 in.
Front camshaft bushing I.D.– max.	42.1640 mm	1.6600 in.
Rear camshaft bushing I.D. – max.	37.185 mm	1.4640 in.
Clearance between intravance and front camshaft bushing – max.	0.13 mm	0.005 in.
Clearance between intravance and rear camshaft bushing – max.	0.13 mm	0.005 in.
Clearance between O.D. of control unit pin and bore – max.	0.02 mm	0.001 in.
Clearance between flat of control unit pin and slot in plunger sleeve – max.	0.05 mm	0.002 in.
Distance from top of pump housing to tappet seat in housing	93.83-94.11 mm	3.694-3.705 in.
Distance from face of supply pump insert to face of pumping gears	0.005-0.020 mm	0.0002-0.0008 in.
Camshaft end play	0.03-0.12 mm	0.001-0.005 in.
Tappet Clearance: All except pump nos. 691 344 C91, 691 345 C91, 691 346 C91, 691 347 C91, use tappet guide: 674 770 C1 only	0.10-0.33 mm	0.004-0.013 in.
Pump Nos. 691 344 C91, 691 345 C91, 691 346 C91, 691 347 C91 (See note) choose tappet guide: 674 770 C1, 1 802 036 C1 or 1 802 037 C1	0.10 - 0.18 mm	0.004-0.007 in.
Clearance between control unit plate and end of control rod	0.07-0.43 mm	0.003-0.017 in.

NOTE: Injection pump Nos. 691 344 C91, 691 345 C91, 691 346 C91 and 691 347 C91 require improved control of the clearance between the tappet roller and cam base circle. The 0.10-0.18 mm (0.004-0.007 in) clearance is achieved by selecting one of the three available tappet guide part numbers as follows:

IH PART NO.	COLOR CODE
674 770 C1	None
1 802 036 C1	Yellow Dot
1 802 037 C1	Green Dot

*United Technologies Diesel Systems (formerly AMBAC)

REMOVAL

NOTE: Prior to injection pump removal, conduct the diagnostic checks and adjustments found in the appropriate diagnostic manual.

NOTE: Before removing the injection pump from the engine, rotate the crankshaft in a clockwise direction to the static timing position (refer to "Injection Pump Specifications" Section 1). If the same pump is to be installed, DO NOT rotate the pump drive shaft after the pump has been removed.

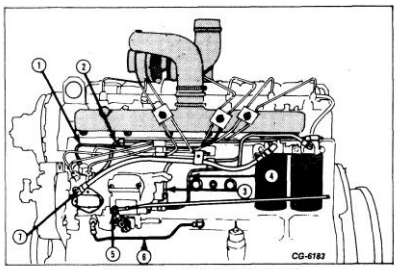


Figure 28 – DT-466 (Side View)

1. Disconnect the governor control linkage (5, Fig. 28) from the pump.
2. Units Equipped w/Bowden Wire Shut-Off: Disconnect control linkage from shut-off lever.

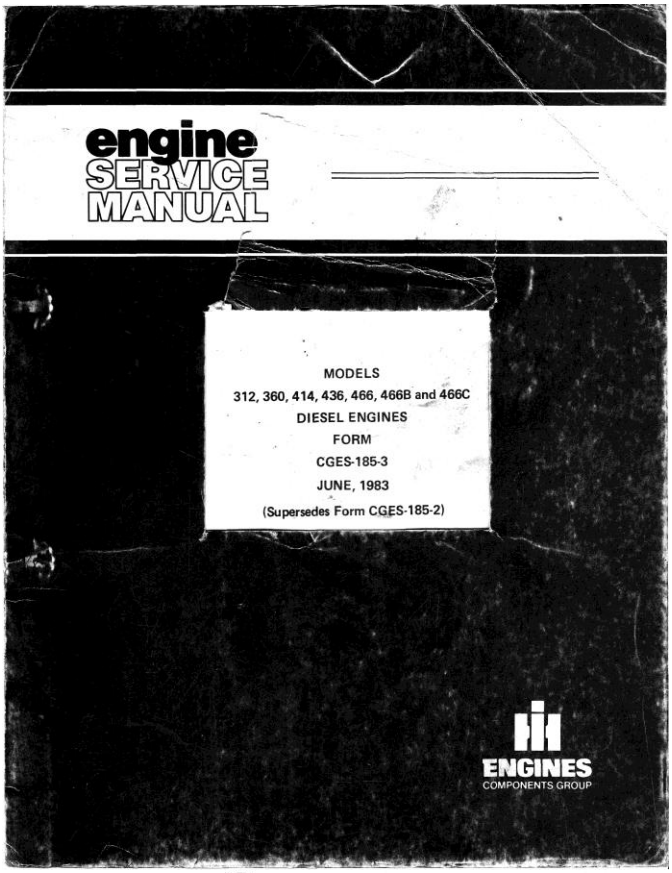
   Units Equipped w/Electric Fuel Shut-Off: Disconnect wire at solenoid.
3. Disconnect the following lines from the injection pump:
   a. Lube oil-supply tube (6, Fig. 28).
   b. Primary filter-to-supply pump tube (4, Fig. 28).
   c. Supply pump-to-final filter tube (3, Fig. 28).
   d. Final filter-to-injection pump hose (7, Fig. 28).
   e. Injection pump-to-injector lines (1, Fig. 28).
   f. Fuel-return tube (2, Fig. 28).

Legend for Figure 28

1. Injection pump-to-injector lines
2. Fuel-return tube
3. Supply pump-to-final filter tube
4. Primary filter-to-supply pump
5. Governor control linkage
6. Lube-oil supply tube
7. Final filter-to-injection pump hose

NOTE: Cap all lines after they are disconnected to prevent entry of dirt.

*United Technologies Diesel Systems (formerly AMBAC)



ENGINE APPLICATION CHART

AGRICULTURAL EQUIPMENT

TRACTORS

ENGINE	MODEL
D-312	H-70
	H-86
	F-666GD
	F-666HS
	F-686GD
D-360	F-766
	F-766GD
	F-886GD
D-414	F-966HS
	F-966GD
DT-414	F-1066GD
	F-1066HS
	F-1086
DT-414B	F-1086D
D-436	H-100
	H-186
	F-986
	F-3688
DT-436	F-1466GD
	F-1486
	F-1566GD
	F-1586
	F-4166
	F-4186
DT-436B	F-1486D
	F-1586D
	F-6388 was F-3388
	F-6588 was F-3588
	F-5088
D-466	F-3488
DT-466	F-4366
DT-466B	F-6788 was F-3788
	F-5288
DTI-466	F-4386
DTI-466B	F-4386
	F-5488
DT-466C	6788
DTI-466C	5488

COMBINES

ENGINE	MODEL
D-360	453
D-414	815
DT-414	915
D-436	1440
DT-436	1460
	1480
DT-436B	1460
	1480
D-466	1440
DT-466B	1480 Rice
	1470 Hillside
DT-466C	1480 Rice 1480 1470

ON HIGHWAY TRUCK

TRUCKS

ENGINE	MODELS
DT-466	Cargostar – Fleetstar Loadstar – Paystar – "S" Series – 2053 Bus
DT-466B	Cargostar – Fleetstar – Loadstar – Paystar – "S" Series
DTI-466B	Cargostar – Fleetstar – Loadstar – Paystar – "S" Series – CO-4050 – FC-Bus.
DT-466C	Cargostar – Paystar "S" Series – 1853 FC-Bus
DTI-466C	Cargostar – Paystar "S" Series – 1853 FC-Bus
SEDDON – ATKINSON TRUCKS	
ENGINE	MODELS
DT-466	Series 300
DT-466B	Series 300
DTI-466B	Series 300
DT-466C	Series 300
AUSTRALIA	
DT-466B	S & T Series
DT-466C	S & T Series

OEM APPLICATIONS

ENGINE	MODELS
D-414	Standard Engine, Generator Set
DT-414	Standard Engine
DT-414B	Standard Engine, Blackwelders Tomato Harvester (LQ 8), Generator Set
D-466	Standard Engine, Generator Set, Galion T-400A Grader (LQ165 & #165A), Galion T-500A, T-500C Grader (LQ157 & #157A), Galion AT-500C Grader (#167, #167A & #169), Power Unit (SSP LQ 3D).
DT-466	Standard Engine, Galion T-600B, T-600C Grader (LQ 158 & # 158), Galion T-500L, T-500M Grader (LQ 161, LQ 161A & # 161A)
DT-466B	Standard Engine, Galion T-600B, T-600C Grader (# 158A), Galion T-500L, T-500M Grader (# 161B), Galion AT-500M Grader (LQ 166A, # 166A & # 168), Galion AT-600 (# 170), Generator Set, Solar Turbine Starter (SLR-1).
DTI-466B	Marine

POWER UNITS

ENGINE	MODEL
D-312	UD-312
D-360	UD-360
DT-360	UDT-360
D-414	UD-414
DT-414	UDT-414
DT-414B	UDT-414B
D-466	UD-466
DT-466	UDT-466

So much for the Intravance system, if any one needs info on these 300 & 400 series engines the entire manual has been scanned. Email the editor at
goldsmithgazet@optusnet.com.au

The Lake Goldsmith Rally will as a pageant of steam, in fact a bit more this Rally.

The Steam Wagons on the Great Southern Steam Trek will arrive at the Rally grounds on Friday around 4pm and they will be there for the Grand Parade on the Oval, and if all goes well there will be an offsite parade up Cheesemans Road for a Photo shoot at the site of the Old Bluestone School at the West end of Cushing Road.

Final arrangements have yet to be finalised at the time of writing, more will be known on the day. The fire Season is expected to be declared on Monday the 2nd of November.

The August edition covered a bit of background on the steam wagons expected to be on the Trek

There will be a short public show outside the Ballarat Town hall midmorning on Wednesday the 28th of October. It is expected that the deputy Mayor of Ballarat and the Pyrenees shire Mayor, Tanya Kehoe. Tanya is the councillor for the Snake Valley ward which includes our Rally Grounds. It is expected that the TV and press will be in attendance and that the Steam Trek and International Rally will get some exposure in the local Media.

Conventional Trucks that will be on the Trek with the Steamers will be at the Town Hall as part of the show. On the right the Navy Steam club Foden Wagon was on show at the same spot for the Heritage Festival.

The Navy Steam Club will be on the Steam Trek but not at the Town Hall.

On Friday October 30 the trek will head for Beaufort where they will assemble and be on show to the public.

Vintage cars and trucks will start to assemble from 10am and steamers on the trek will arrive about noon after a trip along th Highway and through the centre of Beaufort to return along Burke & King Street to Albert Street and the Goods Shed outside Display area.

The area will be open to the public and there will be no entry charge. All are Welcome.

The vehicles will leave on the Pyrenees-lake Goldsmith- Rally Tour at about 2.30pm. They will head South through the traffic lights on the Skipton Road. Slow vehicles will turn left at Ellis Road and then Cheesemans Road to the Exhibitors gate at the Rally ground. Faster vehicles may choose toto stay on the Asphalt and turn left at the Carngham Road.

There should be plenty of photo opportunities, and for those who like expansive views of Beaufort and the Goods Shed and yards they car park at the top of Camp hill may be the spot for you. The above picture was taken on a rainy day, but the Goods Shed can be seen easily, and you can find a spot for some wide angle shots of the display area and the town in general from this elevated park, see the map on the front cover for the access of Kings Street

The photo above, and the one on the next page taken at a visit from the Ballarat branch Of the Historic Commercial Vehicle Club give an idea of the general display area.

This brings an end to edition 134 for August 2015. For those who love the magic of Steam hard at work with a driver who has a flare for Art this picture must raise a nostalgic smile of days long gone.

We hope that you get a chance to enjoy the first run of this event that links the Beaufort Heritage Precinct of Beaufort with the International Rally at Lake Goldsmith.

There are plenty of opportunities along the Carngham Beaufort Road for taking photos of the Steamers. Cemetry Hill just west of Carngham, and some spots in the Forest near the Beaufort end provide picturesque spots with good sound effects and that wonderful smell of burning coal.

Thanks to everyone who has had a hand in organising this unique event bringing together the largest gathering of Steam wagons in Australia and those fabulous Trucks and Tractors that arrived here from the International Harvester plants at Geelong and Dandenong.

The president, Committee and members of the Lake Goldsmith Steam Preservation Association wish thank all of the participants and exhibitors who have helped with this Rally and hope that the visitors enjoy the 106th Rally and Tour. Ed.